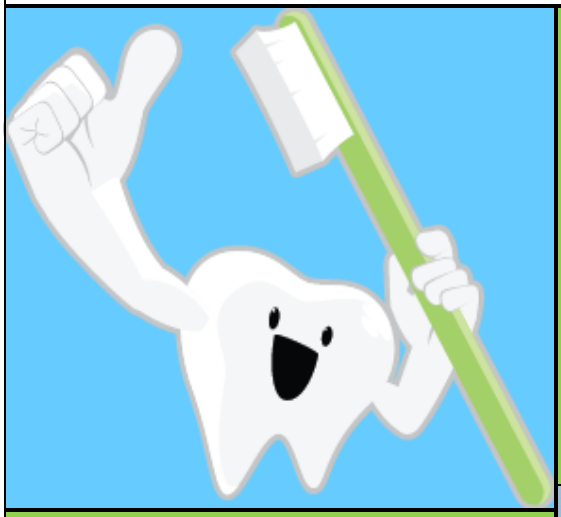
Missouri Preventive Services Program
A Report from the 2013-2014 School Year



Promoting Healthy Smiles through Prevention and Education

Healthy Smiles for a Healthy Life

Missouri Department of Health and Senior Services
Office of Primary Care and Rural Health
Oral Health Program
health.mo.gov/oralhealth
oralhealth@health.mo.gov
1-800-891-7415

Introduction

As stated in *Oral Health in America: A Report of the Surgeon General*, oral health is essential for general health and quality of life. The consequences of poor oral health are pain, financial and social costs, and complications that affect overall well-being. In children, poor oral health has been linked to missed school as well as problems with speaking, eating, and learning. [1] Tooth decay is the most common chronic childhood disease in children – it is five times more common than asthma. [2]

To address the serious consequences of those oral health needs for children in particular, the Missouri Department of Health and Senior Services (DHSS) created the Missouri Oral Health Preventive Services Program (PSP). The PSP is a free, community-based, systematic approach to population-based prevention of oral disease. The PSP is dedicated to promoting healthy smiles in all Missouri's children (infants to age 18) through oral health education and preventive treatment.

The PSP is managed by the Missouri Oral Health Program (MOHP) within the Office of Primary Care and Rural Health. The program is coordinated by five regional oral health consultants (who are Registered Dental Hygienists) (Appendix 1, OHC Map) who assist communities with implementing the PSP in their schools, day care centers, Head Starts, preschools, health clinics, and other settings. In addition to technical assistance, DHSS provides educational materials, oral health screening supplies (such as screening forms and disposable mouth mirrors), oral health supplies (toothbrushes, toothpaste, and floss) and fluoride varnish for each PSP event. The PSP also provides online instructions for dental health professionals who perform oral health screenings and training for parents and other volunteers who perform the fluoride varnish application. This ensures consistency in PSP findings and practices.

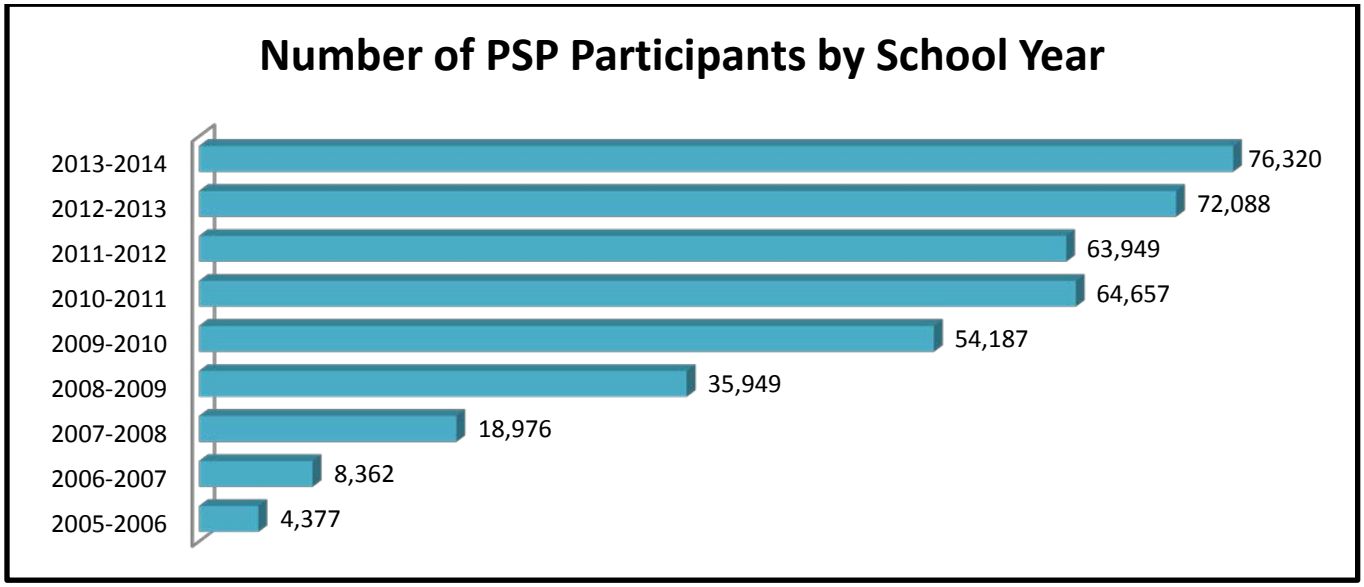
It is important to note that the PSP is a community driven program and is only possible through the hard work and enthusiasm of school nurses and others interested in promoting oral health at their institutions. Community volunteers are essential for PSP programs. These local volunteers include the dentists and dental hygienists who perform oral health screenings as well as parents and other volunteers who apply fluoride varnish.

This report highlights the accomplishments of the 2013-2014 School Year as well as important oral health findings from the oral health screening component of the program. Parental consent is presented for every PSP participant who receives a screening and/or application of fluoride varnish. Each child receives two doses of fluoride varnish per school year through PSP. It is important to state that any child who has been identified as having a need for dental care is provided with information to be shared with their parent or guardian about the problem, how soon the need should be addressed, and a list of dentists or dental clinics in their area that can assist them.

Overview

In the 2013-2014 School Year, 76,320 children were served by the PSP. This is the highest number ever reached in the history of the program, which began in 2006. However, this number is lower than predicted, due to the number of missed school days due to inclement weather. The number served in the 2013-2014 School Year was only a 5.5% increase over the previous year, compared to the 2012-2013 School Year, which was an 11% increase over the total for the 2011-2012 School Year. Approximately 67% of PSP participants attend a public school with at least 50% of the student population classified as eligible for free or reduced

school lunch fees. This measure is typically used to define a population as being at high risk for adverse oral health outcomes.

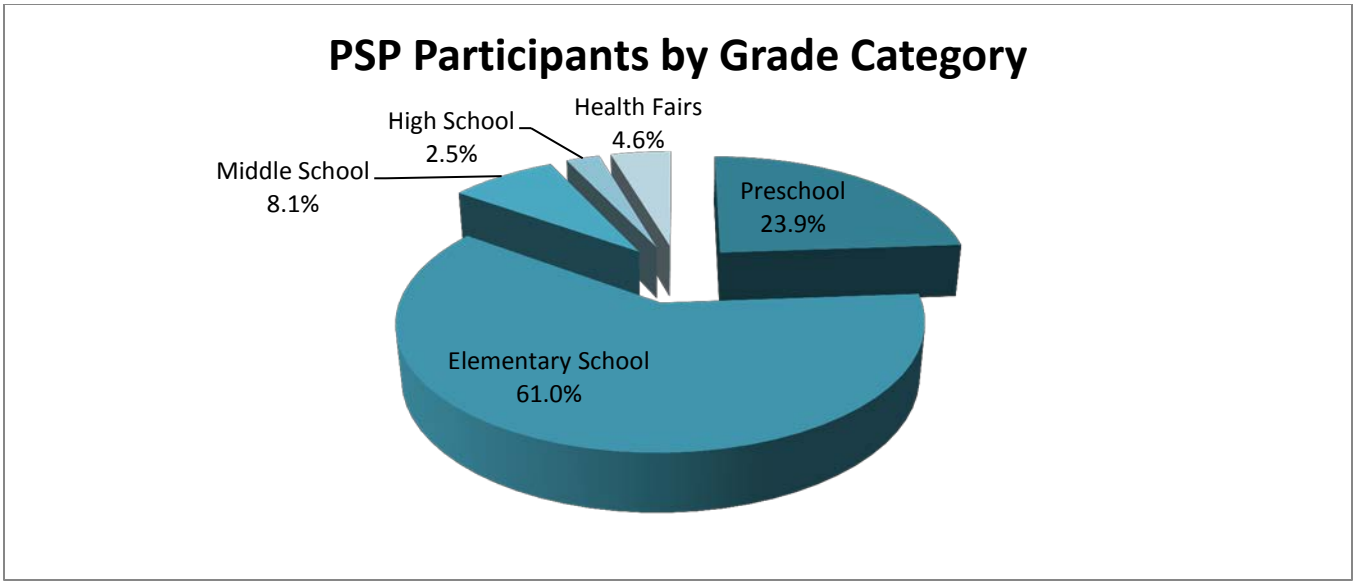


This report presents summary findings from 74,519 screening forms that were returned with data complete enough for analysis from the 2013-2014 School Year. All data reported here are for the 2013-2014 School Year.

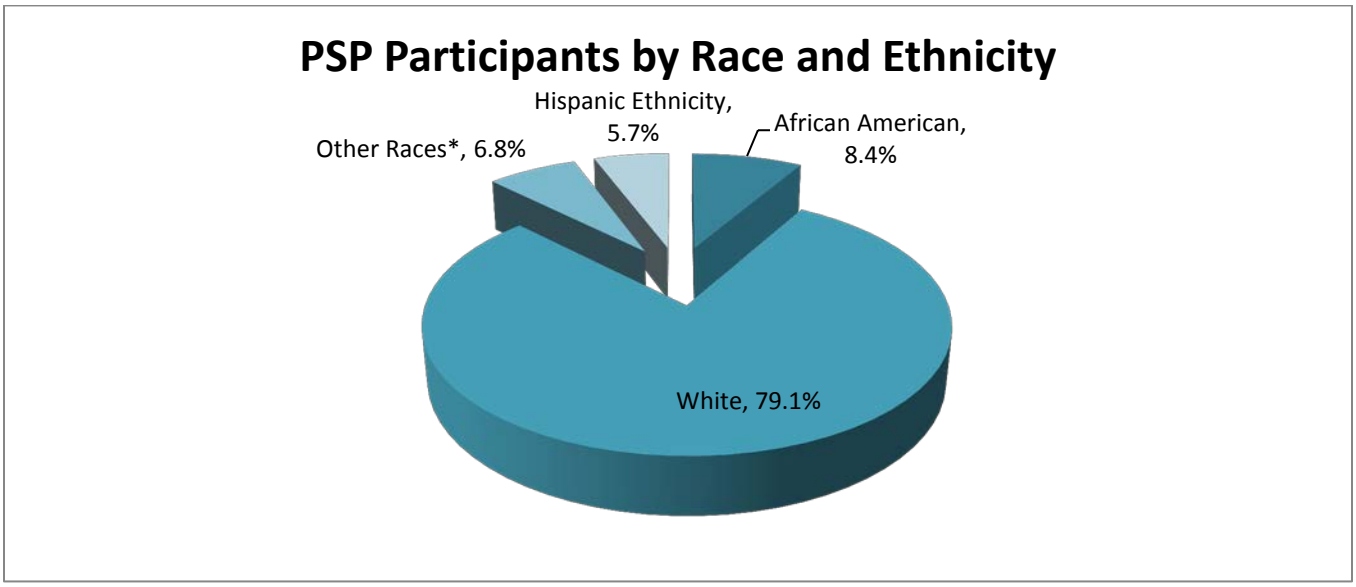
About equal numbers of males and females were served by the PSP in the 2013-2014 School Year. The majority of participants were five to twelve years old while roughly 10% were younger than five years of age. Teenagers (13 years and older) were reached the least frequently of any age group.

PSP Participants by Sex and Age Group			
Age Group	Females	Males	Both Sexes
Under 5 Years Old	3,139	3,345	6,484
5 to 12 Years Old	31,756	32,557	64,313
13 Years and Older	1,831	1,891	3,722
All Ages	36,726	37,793	74,519

Most PSP events take place in schools. Grade level categories consist of preschool (which includes preschoolers, kindergarteners, and Head Start students), elementary school (first through fifth graders), middle school (sixth through eighth graders), and high school (grades nine through twelve). PSP also provides screenings to children that participate in health fairs and similar community events. These events often take place away from schools or during the summer, so grade levels have not been recorded at these events. The PSP reaches the most children in the elementary school category, with over 60% of all participants in first through fifth grades. The second most common grade category is preschool. Middle and high school students make up the least common grade categories. About 5% were reached at health fairs or other events.



The majority of PSP participants are white. About 8% are African American, although a certain percentage from the "other races" category include children identified by screeners as being from more than one race, who may be recorded in the United States Census as African American. Therefore, the actual number of African American participants may be higher than 8.4%. About 6% of PSP participants are of Hispanic ethnicity.



*Other Races category includes children identified by screeners as multiracial.

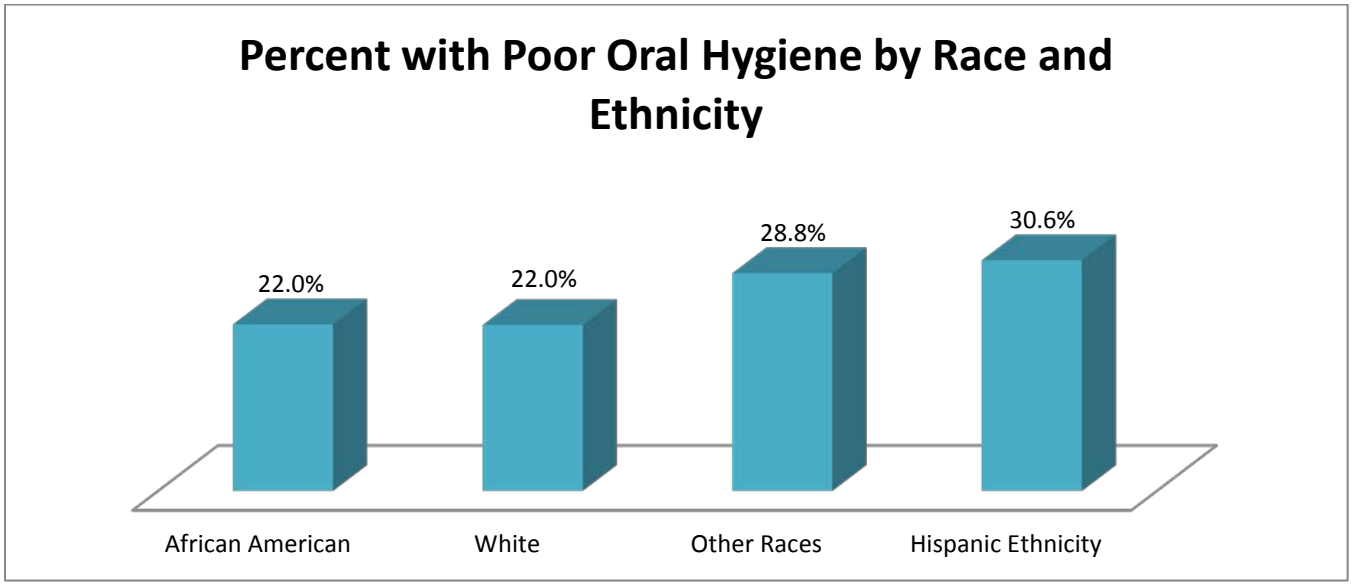
The PSP is a purely voluntary program, so PSP events only occur in communities where school nurses, dental professionals, and volunteers can come together for the cause. For this reason, the distribution of PSP participants varies greatly by geography (see Appendix 2, PSP Map). In the 2013-2014 School Year, however, only nine counties did not have any PSP participants.

Poor Oral Hygiene

Among the 74,519 PSP participants included in this report, poor oral hygiene was observed in 22.9% of those screened. Overall, males were identified as having poor oral hygiene more often than females, and this is especially apparent among teenagers. Older children in general had worse oral hygiene than younger children.

Percent with Poor Oral Hygiene by Sex and Age Group			
Age Group	Female	Male	Both Sexes
Under 5	18.0%	20.1%	19.0%
5 to 12 Years Old	20.8%	25.3%	23.1%
13 and Older	22.1%	30.9%	26.6%
All Ages	20.6%	25.1%	22.9%

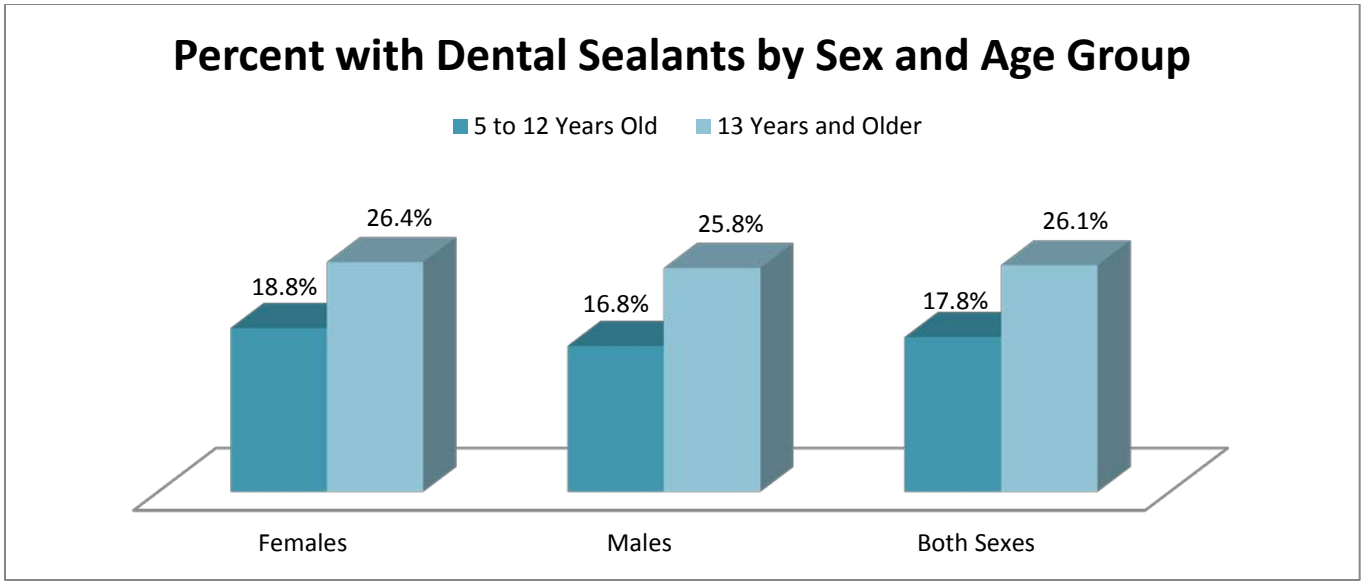
Poor oral hygiene was observed most frequently among individuals with Hispanic ethnicity, followed by other races. Poor oral hygiene was reported least frequently among African American and white children.



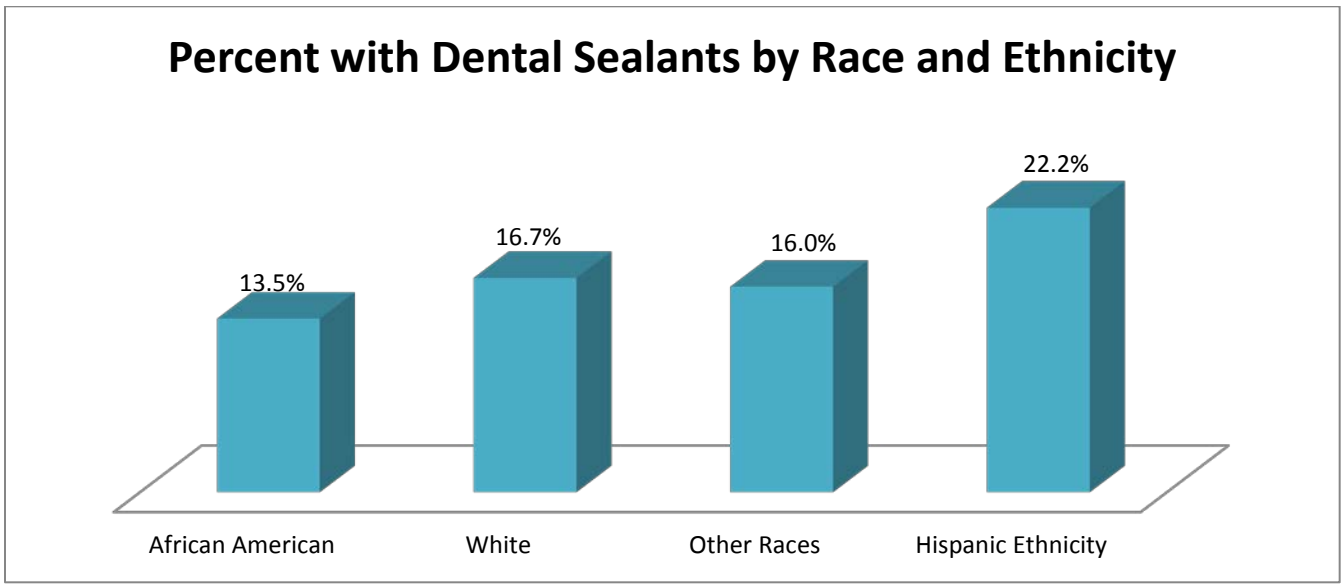
Dental Sealants

Dental sealants are clear plastic coatings applied to the chewing surfaces of permanent molars to prevent cavities. Ideally, dental sealants are placed as soon as possible after the permanent molars erupt. Children are usually around seven when their first permanent molar erupts and around ten when their second permanent molar erupts.

Overall, in the 2013-2014 School Year, 16.7% of children were identified as having dental sealants. Dental sealants are commonly placed on newly erupted permanent molars, so data for the youngest age group (less than five years of age) are not reported. Dental sealants were observed on teenagers more frequently than 5 to 12 year-olds. Sealants were observed on slightly more females than males.

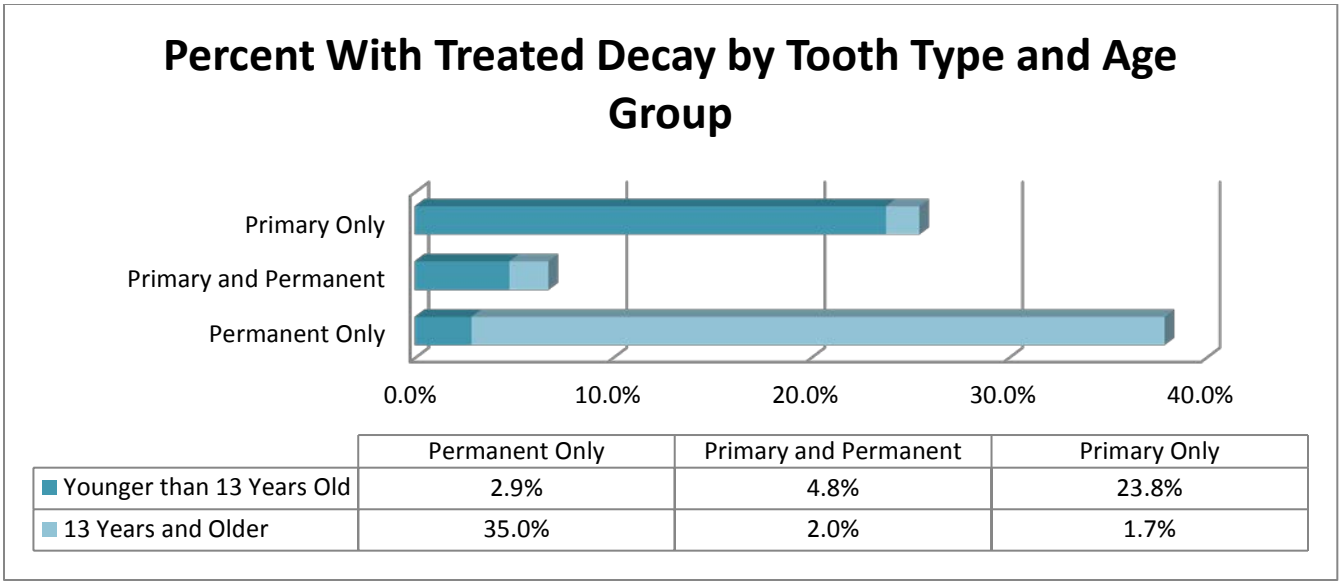


When the percent of children identified as having dental sealants are examined by race and ethnicity, African Americans had the lowest percentage of dental sealants of any group. Hispanic children were the most likely to have dental sealants.



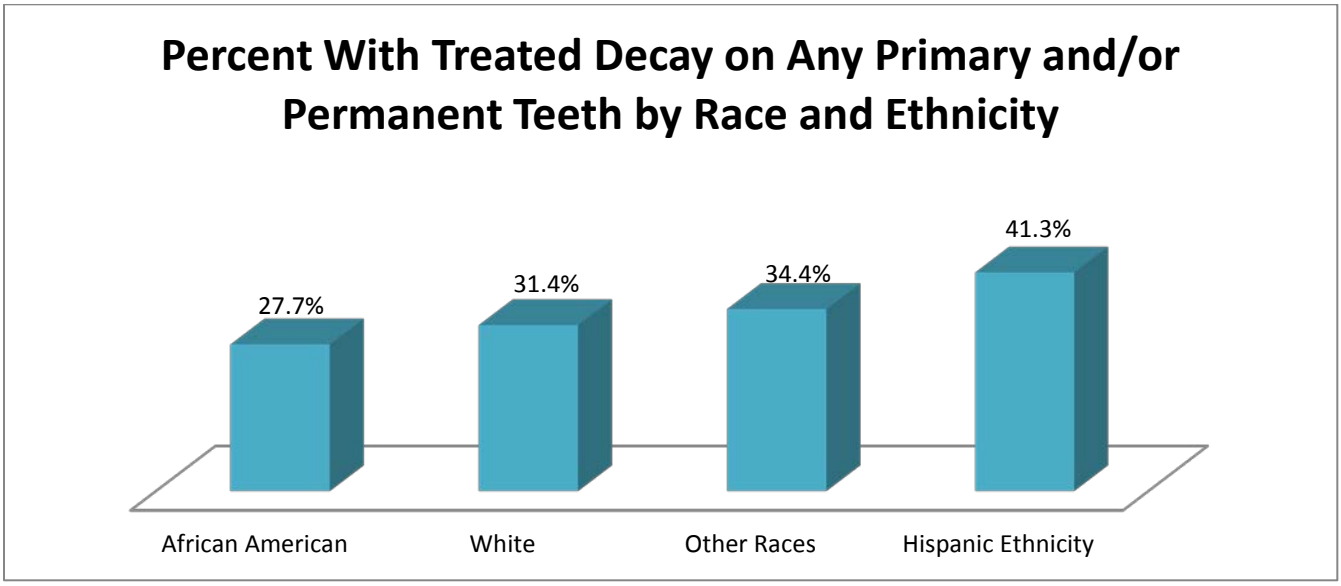
Treated Decay

Evidence of treated decay (fillings) on primary and permanent teeth was recorded during the screening. These results are reported for two age groups because most children have lost their primary teeth and have most of their permanent teeth by age thirteen. Most children (about two-thirds) had no evidence of treated decay. As expected, most of the treated decay reported among the younger age group was on primary teeth only while most of the treated decay was observed on permanent teeth only among the teenage group. Overall, teenagers had more treated decay than younger children.



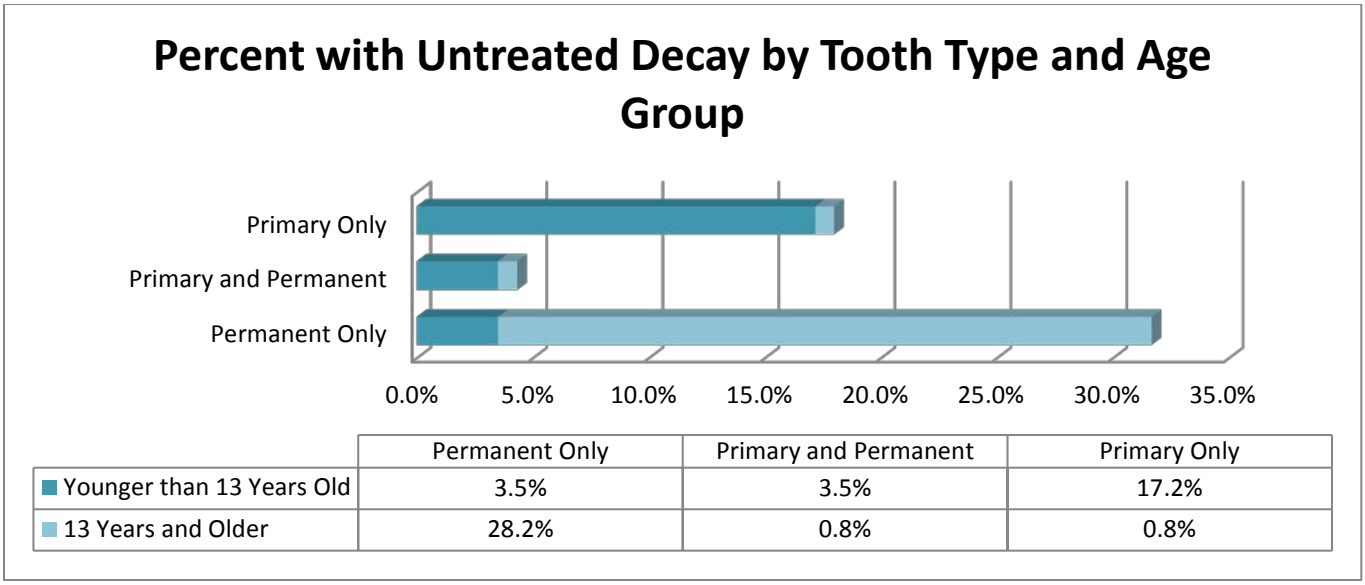
	Permanent Only	Primary and Permanent	Primary Only
Younger than 13 Years Old	2.9%	4.8%	23.8%
13 Years and Older	35.0%	2.0%	1.7%

No difference by gender in treated decay was observed. Hispanic children were most likely and African American children were least likely to have evidence of treated decay on primary and/or permanent teeth. About a third of white children and children of other races had evidence of treated decay on their teeth.



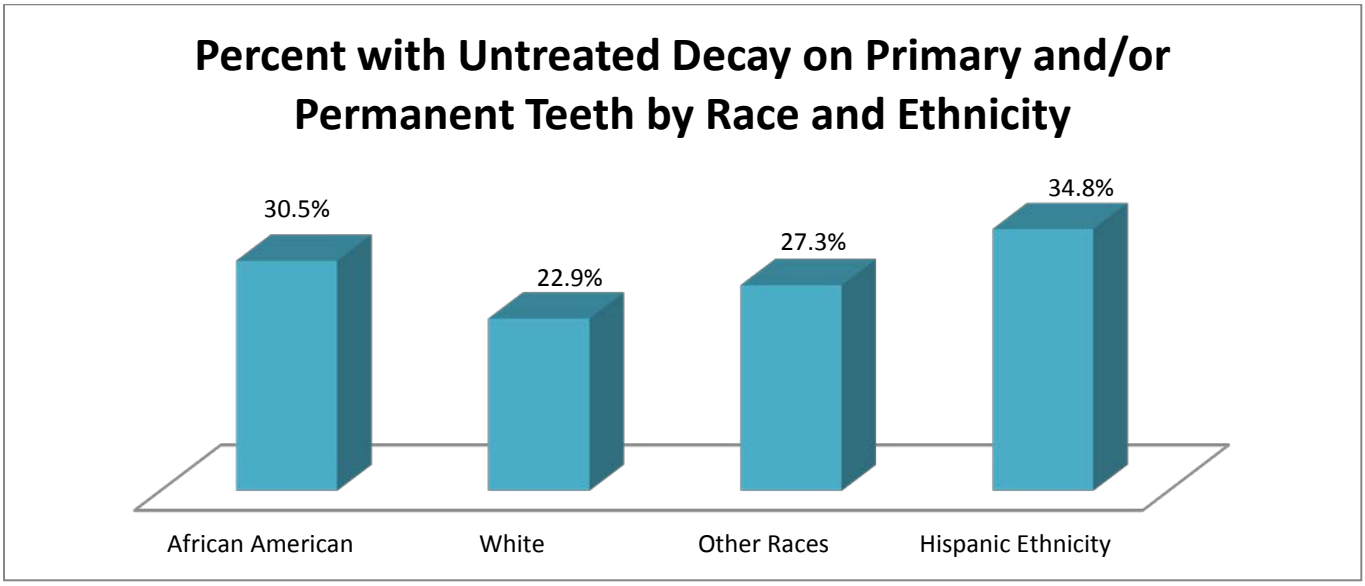
Untreated Decay

Children were also screened for evidence of untreated decay in primary and permanent teeth. The majority of children (nearly three-quarters) did not have any untreated decay. Among those with untreated decay, the majority of those with untreated decay on permanent teeth were 13 years and older and the majority of those with decay on primary teeth only were less than 13 years of age. Very few children had untreated decay on both permanent and primary teeth.



	Permanent Only	Primary and Permanent	Primary Only
Younger than 13 Years Old	3.5%	3.5%	17.2%
13 Years and Older	28.2%	0.8%	0.8%

No difference between males and females was observed for untreated decay. Hispanic children were most likely to have evidence of untreated decay, followed by African American children. White children were least likely to have untreated decay identified during the screening.



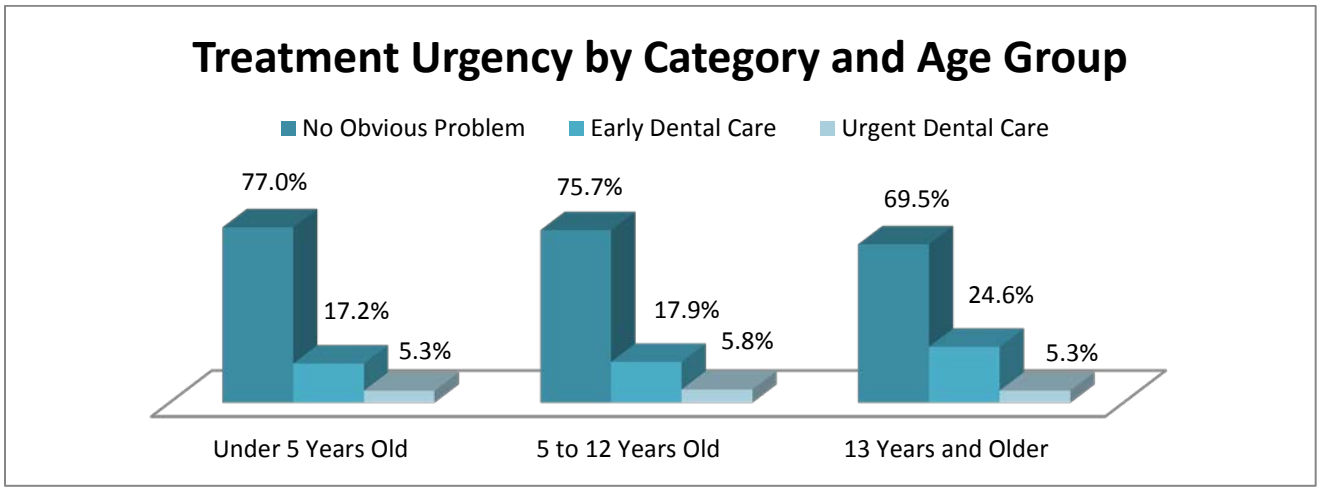
Treatment Urgency

One important service of the PSP is that parents or guardians are informed when a dental issue that needs to be addressed is discovered during the screening. PSP organizers provide referrals for local dental offices or clinics that may be utilized for follow-up care. The need for treatment is categorized in two ways. Early dental care is recommended for injuries or conditions that require the attention of a dental professional in a few months' time. Urgent dental care is recommended to take place within 24 hours because the injury or condition needs immediate attention.

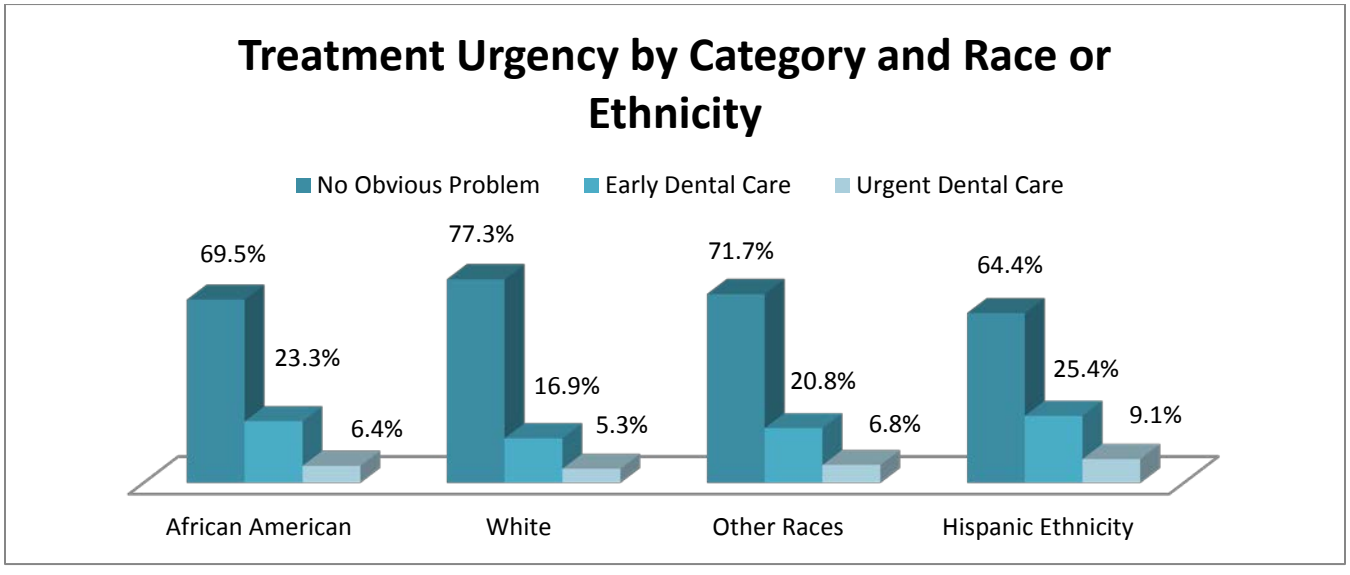
The majority of children did not have any obvious problem that needed early or urgent dental care. About 18% needed a referral for early dental care and around 6% needed urgent dental care. Slightly more males than females needed either early or urgent dental care.

Treatment Urgency by Category and Sex			
	Females	Males	Both Sexes
No Obvious Problem	76.3%	74.8%	75.5%
Early Dental Care	17.8%	18.6%	18.2%
Urgent Dental Care	5.5%	6.0%	5.7%

When examined by age group, children less than five years old were the least likely and teenagers were most likely to have a treatment need, with early dental care needed in about a quarter of all teenagers screened. Although urgent dental care was not needed for the majority of children, it was reported most frequently (nearly 6%) among 5 to 12 year-olds.



About a third of African American and Hispanic children had either an early or urgent dental need. Hispanic children had the highest percentage of urgent dental needs of any racial or ethnic group examined.

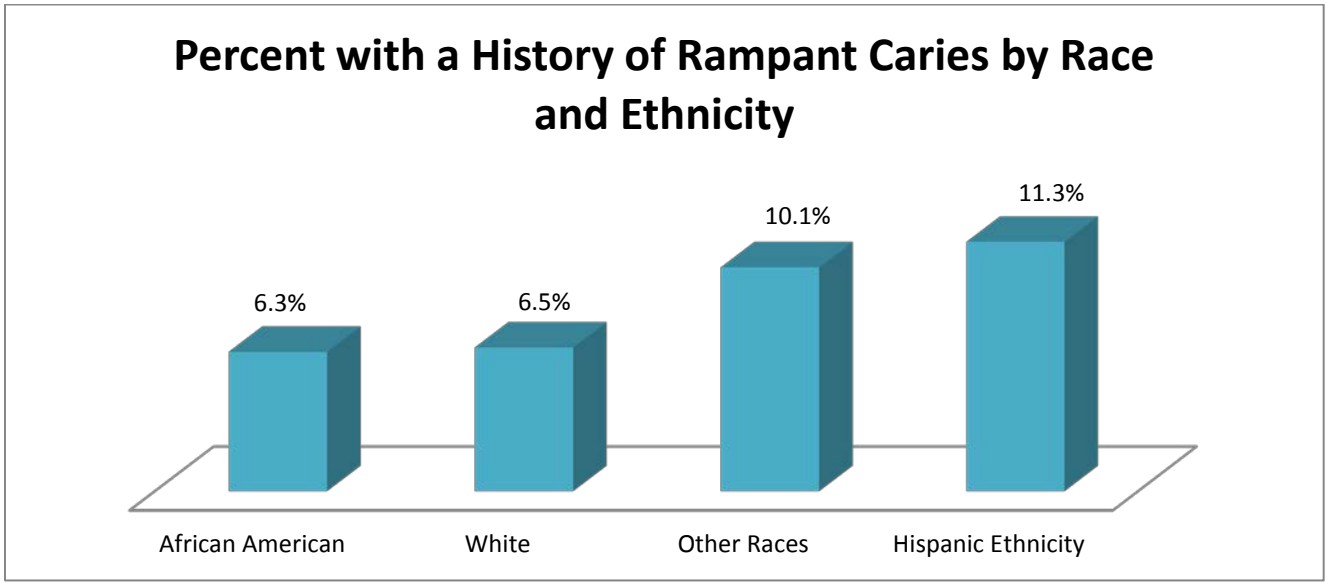


Rampant Caries

Rampant dental caries involve several teeth and can appear suddenly and progress rapidly. Only 7.0% of children participating in PSP were classified as having a history of rampant caries. The proportion of rampant caries was higher in males than females. The percentage was also higher for those under 13 years of age than among teenagers.

Percent with a History of Rampant Caries by Sex and Age Group			
Age Group	Females	Males	Both Sexes
Under 5	7.3%	8.2%	7.7%
5 to 12 Years Old	6.5%	7.6%	7.1%
13 and Older	4.3%	4.2%	4.2%
All Ages	6.5%	7.5%	7.0%

When compared by race and ethnicity, African American and white children had the lowest percentage of a history of rampant caries than children of other races or Hispanic ethnicity. In fact, the percentage of Hispanic children with a history of rampant caries was nearly twice the proportion in African Americans or whites.

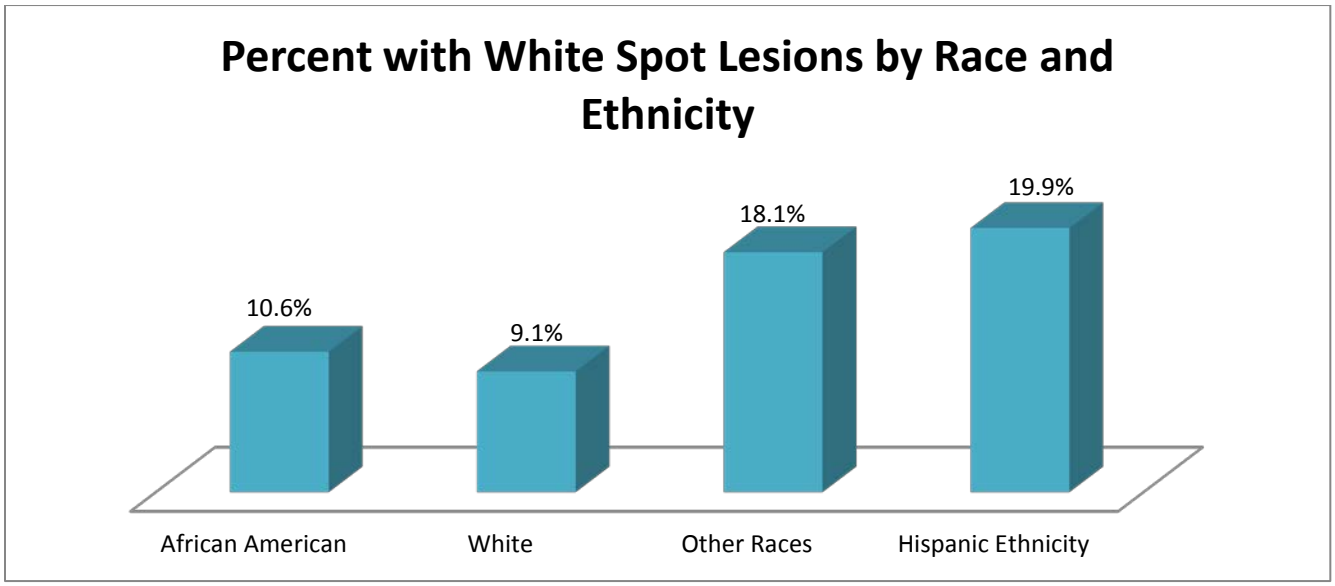


Early Childhood Findings

White spot lesions and early childhood caries are each screened for in children three years old and younger in PSP. For both conditions, findings are reported on primary teeth and only on maxillary (top row) front teeth. It is important to note that PSP mainly serves school-age children, so only 2,685 children three years old and younger were screened in the 2013-2014 School Year; this is about 4% of the PSP population.

White Spot Lesions

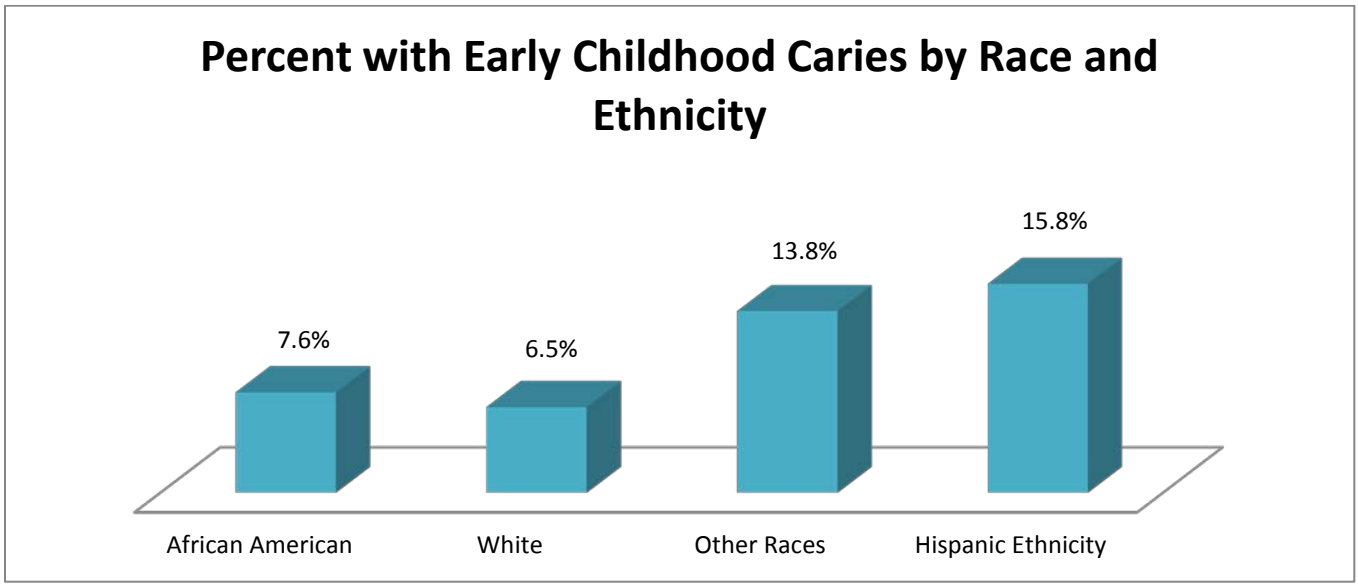
Overall, 11.7% of children three years of age and younger screened had white spot lesions. When this is examined by race and ethnicity, African American and white children had the lowest percentages of white spot lesions. The percentage of white spot lesions was reported about twice as often in Hispanic and children identified as being from Other Races than white and African American children.



Early Childhood Caries

Early childhood caries, also known as baby bottle caries or baby bottle tooth decay, is a syndrome characterized by severe decay in the teeth of infants and young children caused by a bacterial infection. Evidence of early childhood caries was observed in 7.9% of children three years old and younger.

The lowest percentages of early childhood caries were observed among African American and white children and the highest rates were observed among children of other races and Hispanic ethnicity.



Conclusions

In reviewing data for the 2013-2014 School Year, some trends in oral health among PSP participants are visible. Here are some highlights:

Preventive Factors:

- **Poor oral hygiene** was seen in about 23% of all children screened, most frequently in teenage males and children of Hispanic ethnicity and other races. The majority of children (almost 80%) had satisfactory oral hygiene.
- **Dental sealants** were visible on about 17% of all children in PSP. African American children were the least likely to have dental sealants and Hispanic children were the most likely.

Tooth Decay:

- Evidence of **treated and untreated decay** was observed in about a third of all children in PSP. African American children were least likely and Hispanic children were most likely to have either treated or untreated decay.
- Overall, about 7% of children had a history of **rampant caries**. This was more frequently reported among males and among younger children (less than five years of age). Hispanic and children from other races were most likely to have a history of rampant caries.

Treatment Urgency:

- About a quarter of all children in PSP were identified as needing **early or urgent dental care** and were sent home with a notification to their parent or guardian about this finding. Early dental care was needed most frequently among teenagers and urgent dental care was needed most frequently among 5- to 12-year-olds.
- White children were least likely to have a dental problem that needed follow-up care. About 9% of Hispanic children needed urgent dental care.

Early Childhood Findings:

- **White spot lesions** (the earliest sign of tooth decay) were visible in about 12% of PSP participants three years of age and younger. African American and white children had the lowest percent of white spot lesions; the rate observed among Hispanic children and those from other races was approximately double the rate observed in African American and white children.
- **Early childhood caries** (or baby bottle tooth decay) was observed in 8% of children three years old and younger. The lowest rates were observed among African Americans and whites while children from other races and Hispanic ethnicity had the highest rates.

Recommendations:

- Dental sealants are an important measure to prevent tooth decay, but were observed in only 17% of PSP children. Improving this percentage among Missouri's children in general would help to reduce decay experience.

    - This recommendation was made in the 2012-2013 School Year's PSP report and since that time, the MOHP has implemented two school-based dental sealant programs through partnerships with the Pettis County Health Department and Jordan Valley Community Health Center. More programs are needed, however, to improve the proportion of Missouri's children that have dental sealants.
- African American children had lower rates of several adverse oral health outcomes; however, they also had the lowest percentage of dental sealants observed. This may be a focus area for intervention for communities that have the resources for dental sealant programs.
- Although a larger proportion of Hispanic children were identified as having dental sealants, for many poor oral health outcomes, Hispanic children had the highest percentage of any racial or ethnic group observed. The most concerning of these are untreated decay, rampant caries, the need for urgent dental care, and early childhood findings. Communities with Hispanic populations may need to tailor oral health messages to meet the cultural and linguistic needs of parents, guardians, and children of Hispanic ethnicity.
    - This recommendation was made in the 2012-2013 School Year's PSP report, and since that time, the MOHP has had all educational materials and PSP documents have been translated into Spanish. However, additional opportunities to educate the Hispanic population about oral health will be identified and implemented in the coming school year.
- The early childhood findings (among children three years of age and younger) suggest that a special effort should be made to educate the parents of young children about oral health in general, with particular emphasis on those of Hispanic descent.

For more information:

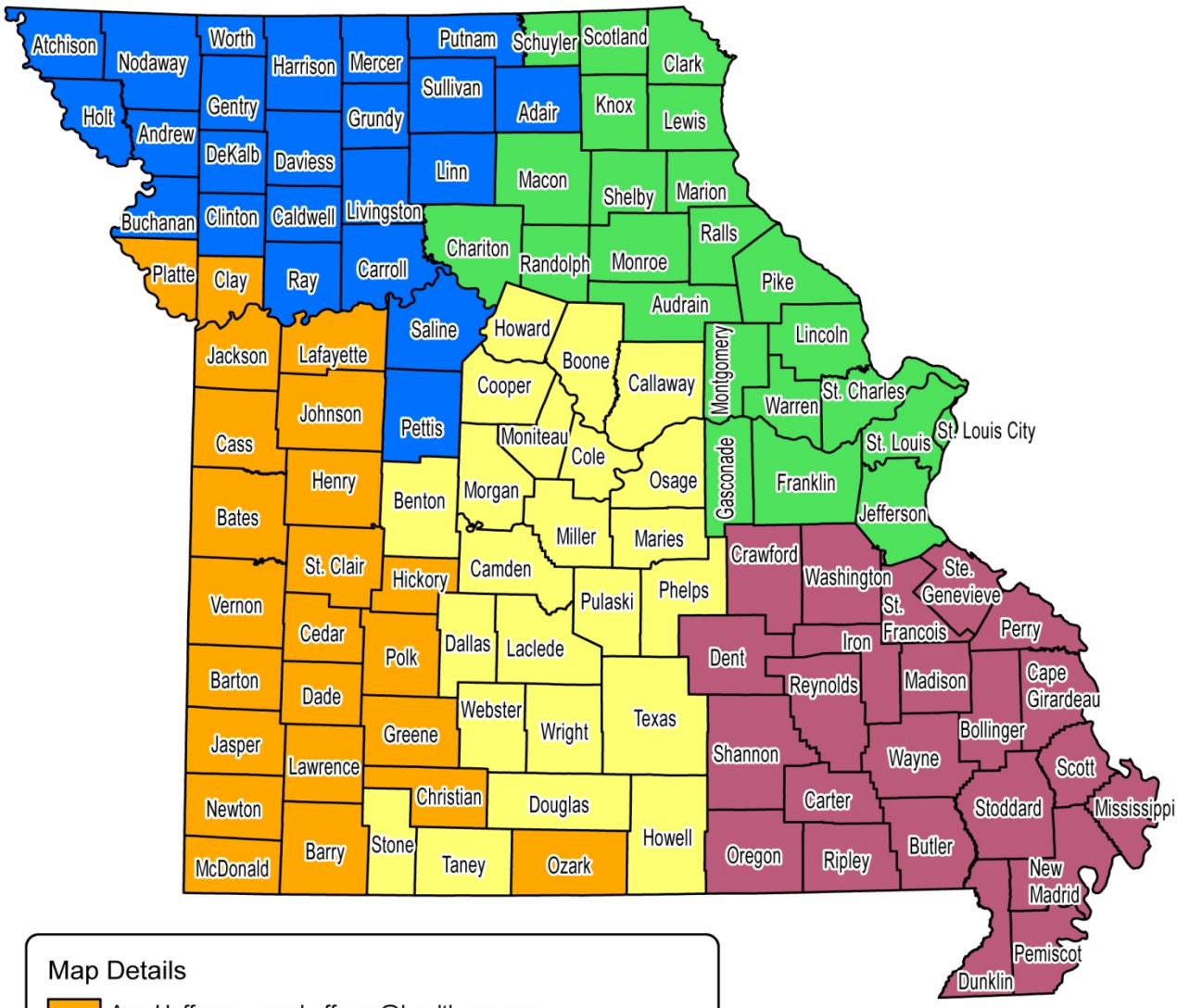
- Please contact the Missouri Oral Health Program for more information about PSP and oral health in general at 1-800-891-7415 or visit us at http://health.mo.gov/living/families/oralhealth/.
- Please visit http://health.mo.gov/living/families/oralhealth/oralhealthsurv.php for oral health surveillance reports.
- To learn more about PSP events in your area or to start a new event, please contact one of our five regional Oral Health Consultants (see Appendix 1).

References

1. U.S. Department of Health and Human Services, *Oral Health in America: A Report of the Surgeon General,* 2000.
2. U.S. Health Resources Services Administration, Oral Health: Women and Children, 2013. http://www.hrsa.gov/publichealth/clinical/oralhealth/maternalchild.html

Funding for this project is provided by the Title V Maternal and Child Health Block Grant from the Health Resources Services Administration. We thank them for their continued support of oral health in Missouri.

Appendix 1. PSP Oral Health Consultants by Region



Map Details

- Ann Hoffman - ann.hoffman@health.mo.gov
- Audrey Hendee - audrey.hendee@health.mo.gov
- Jeffrey Bellamy - jeffrey.bellamy@health.mo.gov
- Karen Bassford - karen.bassford@health.mo.gov
- Molly McBride-Mooty - molly.mcbride-mooty@health.mo.gov

Appendix 2. Preventive Services Program Participants by County 2013 – 2014 School Year